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# Case Report

# Albright's Syndrome: Review of the Literature and Case Report

Maria Regina Sposto<sup>1</sup>, Cláudia Maria Navarro<sup>1</sup>, Maria Rita Brancini de Oliveira<sup>2</sup>, Mário Francisco R<sub>A</sub>Gabrielli<sup>1</sup> and Benedito Antonio Ferreira<sup>1</sup>

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Key words: Albright's syndrome, fibrous dysplasia, endocrinopathies, "cafe au lait" spots

## **Abstract**

Albright's syndrome is characterized by the presence of polyostotic fibrous dysplasia, endocrinopathies and brown spots on the skin. In the present article the authors describe a case occurring in a 20-year-old female patient, who is currently being followed radiographically after a mandibular bone biopsy.

#### Introduction

Fibrous dysplasia is a benign fibro-osseous lesion that can affect long bones, the maxilla and the mandible. The monostotic form affects only one bone, while the polyostotic form can affect various bones of the body [1-3]. When polyostotic dysplasia is accompanied by "cafe au lait" spots on the skin, it is given the name Jaffe's syndrome. This is a variation of Albright's syndrome, but is not as serious. Albright's syndrome is characterized by the triangle of polyostotic fibrous dysplasia, "cafe au lait" spots on the skin and endocrinopathies of unknown etiology and uncertain pathogenesis<sup>[3-10]</sup>. Females are affected more often in a proportion of 3:1; monostotic fibrous dysplasia is 20 to 30 times more frequent than the polyostotic form. The lesion on the skin generally consists of small spots, dark and irregular, known classically as "cafe au lait" spots. Some authors have reported<sup>[10,11]</sup> a correlation between the skin spots and the degree of bone involvement.

Endocrinological disorders can appear in early sexual maturation<sup>[3]</sup>. This is particularly evident in women, who may show menarche at an early age, growth of pubic and axillar hair and development of breasts from the age of 5 onwards. Other glands such as the hypothalamus, thyroid, parathyroid and pancreas may show functional disturbances<sup>[12,13]</sup>, which can result in insulin-resistant diabetes mellitus<sup>[10]</sup>.

Albright's syndrome is generally detected in young individuals. It has a variable clinical course<sup>[5]</sup> with changes being completed in the developmental phase<sup>[14]</sup>, and sometimes shows uncommon exacerbation of quiescent bone lesions during pregnancy<sup>[15]</sup>.

Initially these lesions appear as radiolucent spots and can also acquire a radiopaque aspect; approximately 15% of all cases of polyostotic dysplasia involve the maxilla or mandible, the most common clinical sign being facial asymmetry without painful symptoms. Occasionally there are reports of dentinal dysplasia in areas of fibrous dysplasia<sup>[9]</sup> and delay of tooth eruption. In some cases dentinal resorption is noted<sup>[4,16]</sup>.

Histologically, fibrous dysplasia is a fibro-osseous lesion and shows replacement of trabecular structure by a stroma of connective tissue with islands of calcified tissue. This aspect depends on the age of the lesion<sup>[2,3,9]</sup>. Eventually, the presence of cartilaginous tissue can be observed within the connective tissue due to osseous metaplasia<sup>[3,17,18]</sup>. Malignancy may be present in bones showing dysplasia, although in some cases

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it is not possibille to confirm whether these changes are merely coincidental. On the other hand, it is accepted that malign changes may occur after radiotherapy<sup>[7,19,20]</sup>. Furthermore, there are difficulties in differentiating between osteosarcomas with low-grade malignancy and benign dysplastic lesions<sup>[21]</sup>.

In cases where osseous involvement can be shown very clearly and where this causes severe facial deformities and functional changes, radical surgery such as mandibulectomy and replacement with iliac bone may be indicated<sup>[10]</sup>. In other cases, cosmetic surgical treatment is performed for correction of deformities and fractures in strategic areas whenever the professional deems this advisable<sup>[3]</sup>.

This report of a case includes all the characteristics of Albright's syndrome described previously in the literature.

# **Case Report**

A white female Brazilian patient aged 20 years was referred to the Oral Medicine Service at the Department of Oral Diagnosis, Faculty of Odontology, Araraquara-UNESP, by an orthodontist. Upon analysis of routine radiographs for treatment planning, the presence of osseous changes in the mandible was noted. The patient had facial asymmetry with an increase in the volume of the mandible on the left side, and a prominent frontal bone on the right side (Fig. 1). Panoramic radiography was requested, occlusal for the mandible and periapical for the whole mouth. This showed the presence of radiolucent areas mixed with radiopaque areas. They had a typical unpolished glass appearance, mainly on the left side of the mandible, and extending to the condylar region on the same side, thus suggesting fibrous dysplasia (Fig. 2).



Fig.1 Clinical photograph showing asymmetry on the left side of the face



Fig.2 Panoramic radiograph showing enlargement, radiolucency and radiopaque areas in the left side of the mandible

Periapical radiography showed that the entire mandible and maxilla were affected by osteolytic areas. Some teeth showed resorption suggesting previous orthodontic traction, which was confirmed by the patient (Fig. 3). Radiography of the long bones of the leg showed signs of shortening of the left leg, and the diaphasic femoral portions and the proximal diaphysis of the right tibia showed loss of definition in the trabeculated bone spongy areas (Fig. 4).



Fig.3 Periapical radiograph illustrates the "unpolished glass" aspect of the mandibular alveolar bone.



 ig.4 Radiograph of the legs showing loss of definition in trabeculated bone spongy areas

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The patient reported episodes of early menstruation at the ages of 4 and 8, and beginning of menstruation at 11, although irregular. Furthermore, in the right lumbar area, extensive spots of brown pigmentation were evident(Fig. 5). In view of the clinical and radiographic findings, including polyostotic fibrous dysplasia, endocrine changes and typical "cafe au lait" spots, the initial diagnosis was Albright's syndrome. The patient underwent osseous biopsy on the left side of the mandible, which confirmed the diagnosis of fibrous dysplasia with the presence of irregular trabeculae of indefinite (unclear) disposition and sometimes coalescent, showing osteoclasts and osteoblasts with apposition and resorption activity; the spaces were filled with connective tissue rich in cells and without evidence of malignancy (Fig. 6).

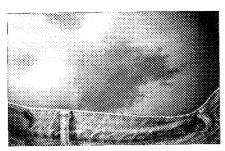


Fig. 5 Clinical features of the large irregular areas of cutaneous "cafe au lait" pigmentation

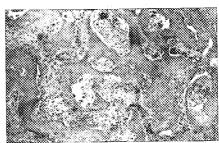


Fig. 6 Microscopic features of the biopsy sample, showing several trabeculae of dysplastic bone with an irregular form mixed with connective tissue (400 ×, H/E)

Laboratory examinations were carried out including a complete hemogram, classic glycemia curve, levels of blood phosphorus and calcium, and alkaline phosphatase activity. The level of alkaline phosphatase was very high (382 U/l - Roy method). The results of the other examinations were within normal limits. It was therefore possible to establish a definite diagnosis of Albright's syndrome. Conservative management with periodic radiographic follow-up was chosen. The relative danger of radiotherapy and the eventual risk of spontaneous fractures were explained to the patient. She was referred to an orthopedist and an endocrinologist for simultaneous follow-up.

#### Discussion

Albright's syndrome is considered rare, simple polyostotic dysplasia being much more common without involvement of endocrine glands and skin manifestations. As in this case, it is almost always diagnosed accidentally upon routine radiographic examination when there are no obvious signs of facial asymmetry. Symptoms occur only when such dysplasia reaches a well advanced state, and may result in paresthesia, diplopia, decreased visual acuity and cross-eyed vision<sup>[6]</sup>.

Here the only option was radiographic follow-up, since the lesion involved the mandible, especially the left side, and the whole maxilla. Radical surgery was not advisable because of the extent of the lesion. Some cases can progress to malignant neoplasia<sup>58</sup>, and such malignant alterations occur mainly in cases where the lesion has been treated by radiotherapy. Furthermore, some cases reported in the literature have been treated very conservatively; surgical procedures have been aimed strictly at the improvement of the cosmetic aspect in cases of asymmetry. Our patient had already completed the growth phase, during which dysplasias show exacerbation<sup>(22)</sup>; she had suffered from discrete facial asymmetry without any strong need of cosmetic surgery, and had no pathological fractures of the involved bones.

Dental resorption was confirmed, suggesting previous orthodontic treatment with application of excessive force. However, as resorption can also be found in dysplastic areas with no apparent cause, the origin of such resorption remained obscure in this case<sup>[4,16]</sup>. The level of alkaline phosphatase was considerably

high, a feature common to most cases, although the significance of this change is still unknown<sup>[23]</sup>. There is a report of a correlation between the extension of spots on the skin and the degree of osseous involvement<sup>[11]</sup>; this is applicable to the present case, in which the spots were very extensive and the bones were markedly affected by dysplasia. However, some authors<sup>[24,25]</sup> do not agree with this supposition, and describe the skin pigments as "cafe au lait" spots.

Albright's syndrome is found more commonly in women, perhaps due to the higher frequency of examination for gland disturbances. On the other hand, it is difficult to verify changes in men, in whom certain endocrinopathies such as insulin-resistant diabetes mellitus<sup>(12)</sup> may go unnoticed, and thus some cases may not be diagnosed.

In this case, a bone biopsy was performed to rule out possible malignancy. Although the result was negative, follow-up of the case will be continued; new biopses will be taken if necessary, since it is difficult to tell the difference between osteosarcoma of low-grade malignancy and benign fibrous dysplasia<sup>[26,27]</sup>. The histopathological diagnosis should thus be made by highly reliable pathologists with experience in bone tissue.

Since neither the etiology nor a definite treatment of the lesions has been established, there is a great need to advise patients about the care, precautions and probable evolution of the disease. Patient awareness about the degree of involvement and evolution of the disease minimizes the risk of being treated by uninformed professionals using unadvisable procedures such as radiotherapy and application of orthodontic force in areas of dysplastic bone.

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